

What is Claimed is:

1. A magnetoresistive film comprising:
 - a soft magnetic free layer;
 - a ferromagnetic pinned layer; and
 - a non-magnetic layer interposed between the soft magnetic free layer and the ferromagnetic pinned layer such that the magnetization of said ferromagnetic pinned layer is fixed with respect to a magnetic field to be detected;wherein the magnetoresistance of the magnetoresistive film changes upon application of a detecting current across said soft magnetic free layer and said ferromagnetic pinned layer through said non-magnetic layer, with the absolute value of the ratio of change in magnetoresistance of said magnetoresistive film having a peak greater than 20% at a temperature in the range from 0°C to 60°C and with a bias voltage applied across said ferromagnetic pinned layer and said soft magnetic free layer being in the range from +0.2 to +0.8 V and from -0.8 to -0.2 V.
2. A magnetoresistive film according to claim 1,
 - wherein said peak is maximal value.
3. A magnetoresistive film according to claim 1,
 - wherein said ferromagnetic pinned layer comprises half-metal magnetic material.
4. A magnetic recording-reproducing head comprising:
 - a magnetic recording head having a 1st magnetic core, a 2nd magnetic core and coil; and
 - a magnetic reproducing head having a magnetoresistive film which comprises a soft magnetic free layer, a ferromagnetic pinned layer, a non-magnetic layer interposed between the soft magnetic free layer and the ferromagnetic pinned layer such that the magnetization of said ferromagnetic pinned layer is fixed with respect to a magnetic field to be detected;wherein the magnetoresistance of the magnetoresistive film changes upon application of a detecting current across said soft magnetic free layer and said

ferromagnetic pinned layer through said non-magnetic layer, with the absolute value of the ratio of change in magnetoresistance of said magnetoresistive film having a peak greater than 20% at a temperature in the range from 0°C to 60°C and with a bias voltage applied across said ferromagnetic pinned layer and said soft magnetic free layer being in the range from +0.2 to +0.8 V and from -0.8 to -0.2 V.

5. A magnetic recording-reproducing head according to claim 4,
wherein said magnetoresistive film has a flux guide which is connected to a magnetoresistive film's opposite side to said recording medium.
6. A magnetic recording-reproducing head according to claim 6,
wherein said flux guide comprises a soft magnetic material so that the flux from the magnetic recording medium is introduced into the magnetoresistive film.
7. A magnetic recording-reproducing head according to claim 4,
wherein said peak is maximal value.
8. A magnetic recording-reproducing head according to claim 4,
wherein said ferromagnetic pinned layer comprises half-metal magnetic material.
9. A magnetic sensor comprising:
a soft magnetic free layer;
a ferromagnetic pinned layer;
a non-magnetic layer interposed between the soft magnetic layer and the ferromagnetic layer such that the magnetization of said ferromagnetic layer is fixed with respect to a magnetic field to be detected;
a ferromagnetic layer; and
a non-magnetic insulating layer formed between said a ferromagnetic pinned layer and said ferromagnetic layer;
wherein the magnetoresistance of the magnetic sensor changes upon application of a detecting current across said soft magnetic free layer and said

ferromagnetic pinned layer through said non-magnetic layer, with the absolute value of the ratio of change in magnetoresistance of said magnetoresistive film having a peak greater than 20% at a temperature in the range from 0°C to 60°C and with a bias voltage applied across said ferromagnetic pinned layer and said soft magnetic free layer being in the range from +0.2 to +0.8 V and from -0.8 to -0.2 V.

10. A magnetic sensor according to claim 9,
wherein a spin polarized tunnel electrons are injected into the soft magnetic free layer from the ferromagnetic layer.
11. A magnetic sensor according to claim 9,
wherein said magnetoresistive film has a flux guide which is connected to a magnetoresistive film's opposite side to said recording medium.
12. A magnetic sensor according to claim 11,
wherein said flux guide comprises a soft magnetic material so that the flux from the magnetic recording medium is introduced into the magnetoresistive film.
13. A magnetic sensor according to claim 9,
wherein said peak is maximal value.
14. A magnetic sensor according to claim 9,
wherein said ferromagnetic pinned layer comprises half-metal magnetic material.